

CLAIMS

1. A detection system for determining whether an object (21) is present at a predeterminable location, the system comprising:
a sensor tool (35) including an air outlet (75) at a forward surface thereof from which an air flow is in use delivered;
an air catch sensor (135) pneumatically connected to the air outlet (75) of the sensor tool (35) and being operative to detect a change in pressure of the air flow as delivered from the air outlet (75) indicative of the air outlet (75) being moved proximate a surface of an object (21);
a positioning mechanism (9) to which the sensor tool (35) is attached; and
a control unit (139) for controlling the positioning mechanism (9) to advance the sensor tool (35) such that the air outlet (75) of the sensor tool (35) is advanced through at least one detection point to sense for a surface thereat and determine whether an object (21) is present at a predeterminable location.
2. The detection system of claim 1, wherein the control unit (139) is operative to control the positioning mechanism (9) to advance the sensor tool (35) successively through a plurality of predeterminable detection points to sense for a surface thereat, wherein the sensing of a surface at one of the detection points is indicative of the presence of an object (21) of a respective known kind.
3. The detection system of claim 2, wherein the presence of an object (21) from a plurality of objects (21) of known different kind can be identified.
4. The detection system of claim 3, wherein the objects (21) of known different kind include an object (21) of one kind in different state.
5. The detection system of any of claims 1 to 4, wherein the sensor tool (35) is advanced along a single axis.

6. The detection system of any of claims 1 to 5, wherein the object (21) comprises a carrier (21) supporting a plurality of elements (OB) which are to be operated upon in accordance with a predeterminable operating routine.

7. Use of an air catch sensor unit to determine whether an object (21) is present at a predeterminable location, the air catch sensor unit comprising a sensor tool (35) including an air outlet (75) at a forward surface thereof, and an air catch sensor (135) pneumatically connected to the air outlet (75) of the sensor tool (35) and being operative to detect a change in pressure of an air flow as delivered from the air outlet (75), wherein the air outlet (75) of the sensor tool (35) is advanced through at least one detection point to sense for a surface thereat and determine whether an object (21) is present at a predeterminable location.

8. Use of claim 7, wherein the sensor tool (35) is successively advanced through a plurality of predeterminable detection points to sense for a surface thereat, wherein the sensing of a surface at one of the detection points is indicative of the presence of an object (21) of a respective known kind.

9. Use of claim 8, wherein the presence of an object (21) from a plurality of objects (21) of known different kind can be identified.

10. Use of claim 9, wherein the objects (21) of known different kind include an object (21) of one kind in different state.

11. A method of determining whether an object (21) is present at a predeterminable location, the method comprising the steps of:
providing an air catch sensor unit comprising a sensor tool (35) including an air outlet (75) at a surface thereof, and an air catch sensor (135) pneumatically connected to the air outlet (75) of the sensor tool (35) and

being operative to detect a change in pressure of the air flow as delivered from the air outlet (75); and
advancing the sensor tool (35) such that the air outlet (75) thereof is advanced through at least one detection point to sense for a surface thereat and determine whether an object (21) is present at a predeterminable location.

12. The method of claim 11, wherein the sensor tool advancing step comprises the step of:

advancing the sensor tool (35) successively through a plurality of predeterminable detection points to sense for a surface thereat, wherein the sensing of a surface at one of the detection points is indicative of the presence of an object (21) of a respective known kind.

13. The method of claim 12, wherein the presence of an object (21) from a plurality of objects (21) of known different kind can be identified.

14. The method of claim 13, wherein the objects (21) of known different kind include an object (21) of one kind in different state.

15. The method of any of claims 11 to 14, wherein the sensor tool (35) is advanced along a single axis.

16. The method of any of claims 11 to 15, wherein the object (21) comprises a carrier (21) supporting a plurality of elements (OB) which are to be operated upon in accordance with a predeterminable operating routine.

17. A sensor tool for an air catch sensor (135), the sensor tool comprising a body (59) including a bore (61) which is in use pneumatically connected to an catch sensor (135), and a nozzle unit (69) which comprises a nozzle (71) which is captively, slideably disposed in the bore (61) and extends outwardly of the body (59) and a biasing element (73) for biasing the nozzle (71) outwardly of the body (59), wherein the nozzle (71) includes

an air outlet (75) at a forward surface thereof from which an air flow is in use delivered and an air channel (76) which fluidly connects the air outlet (75) to the bore (61).

18. A detection system for determining whether an object (21) is present at a predeterminable location substantially as hereinbefore described with reference to the accompanying drawings.

19. Use of an air catch sensor unit to determine whether an object (21) is present at a predeterminable location substantially as hereinbefore described with reference to the accompanying drawings.

20. A method of determining whether an object (21) is present at a predeterminable location substantially as hereinbefore described with reference to the accompanying drawings.

21. A sensor tool for an air catch sensor (135) substantially as hereinbefore described with reference to the accompanying drawings.